

REMARKS

In view of the following remarks, Applicant respectfully requests reconsideration and allowance of the subject application.

§102 Rejections

Claims 1-17, 19-34, 36-51, and 53 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Ravi, et al. (U.S. Patent 6,292,834) (hereinafter “Ravi”). Applicant respectfully traverses the rejection.

Ravi teaches transmission of multimedia streams from a server to a client computer over a computer network. In one embodiment, the client computer includes a playout buffer, and the transmission rate is matched to the bandwidth capacity of the network connection between the server and the client computer. If the number of data packets currently in the playout buffer drops below a Decrease_Bandwidth (DEC_BW) threshold, then the transmission rate is decreased by sending a DEC_BW message to the server. Conversely, if the number of packets remaining in the playout buffer rises above a dynamically computed Upper Increase_Bandwidth (INC_BW) threshold and does not drop below a Lower INC_BW threshold for at least an INC_BW wait period, then the transmission rate is incremented. The transmission rate is selected from among a predetermined set of discrete bandwidth values or from within a continuous range of bandwidth values. (col. 3, lines 1-30).

In another embodiment, in addition to responding to variations in network connection capacity, the client computer also determines an average client computational capacity. Accordingly, if the average client computational capacity

1 is less than the network capacity, the lower of the two capacities is the determining
2 one, thereby avoiding a playout buffer overrun. (col. 3, lines 31-38).

3 By contrast to the teaching of Ravi, Applicant's **claim 1** recites:

4 A method, comprising:

5 connecting to a server to receive streaming content at a first rate;

6 receiving a portion of the streaming content at the first rate;

7 requesting the server to send a particular amount of future
8 streaming content at a second rate;

9 receiving the particular amount of future streaming content at an
10 actual rate that is greater than the first rate and less than or equal to the
11 second rate;

12 determining if the actual rate is viable for receiving the
13 streaming content; and

14 if the actual rate is viable for receiving the streaming content,
15 requesting the server to send remaining streaming content at a rate that
16 is not greater than the actual rate.

17 The Office refers to Ravi at col. 3, lines 1-41 to support the assertion that
18 Ravi teaches the claimed "requesting the server to send a particular amount of
19 future streaming content at a second rate". However, Ravi does not teach this
20 element of Applicant's claim. Ravi does not discuss a request for a "particular
21 amount of future streaming content". Ravi does not discuss particular amounts of
22 content at all. Rather, as noted above, Ravi discusses sending
23 Decrease_Bandwidth messages and Increase_Bandwidth messages to the server
24 depending on whether the number of data packets in a playout buffer rises or drops
25 below certain thresholds.

A claim is anticipated only if each and every element as set forth in the claim
is found, either expressly or inherently described, in a single prior art reference
(MPEP 2131). For at least the reason that Ravi does not teach "requesting the
server to send a particular amount of future streaming content at a second rate", it

1 is clear that Ravi does not teach all the elements of Applicant's claim 1.
2 Accordingly, the 102(b) rejection to Applicant's claim 1 based on Ravi is not
3 supported and should be removed. Applicant respectfully requests that the 102(b)
4 rejection of claim 1 be removed.

5 The Office further asserts that the claimed "receiving the particular amount
6 of future streaming content at an actual rate that is greater than the first rate and
7 less than or equal to the second rate" is taught by Ravi at col. 3, lines 1-41.
8 However, as noted above, Ravi does not discuss a "particular amount of future
9 streaming content", and therefore does not teach "receiving the particular amount
10 of future streaming content". Furthermore, Ravi does not discuss receiving such
11 content "at an actual rate that is greater than the first rate and less than or equal to
12 the second rate". Rather, Ravi teaches selecting a transmission rate from among a
13 predetermined set of discrete bandwidth values or from within a continuous range
14 of bandwidth values based on the Decrease_Bandwidth messages and
15 Increase_Bandwidth messages sent to the server.

16 The Office further asserts that the claimed "determining if the actual rate is
17 viable for receiving the streaming content" is taught by Ravi at col. 3, lines 1-41.
18 However, as noted above, Ravi does not discuss receiving content at "an actual
19 rate that is greater than the first rate and less than or equal to the second rate".
20 Ravi teaches selecting a transmission rate from among a predetermined set of
21 discrete bandwidth values or from within a continuous range of bandwidth values
22 based on the Decrease_Bandwidth messages and Increase_Bandwidth messages
23 sent to the server. Thus, Ravi does not teach "determining if the actual rate is
24 viable" as recited in Applicant's claim 1.
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1 The Office further asserts that the claimed “if the actual rate is viable for
2 receiving the streaming content, requesting the server to send remaining streaming
3 content at a rate that is not greater than the actual rate” is taught by Ravi at col. 3,
4 lines 1-41. However, as noted above, Ravi does not discuss “determining if the
5 actual rate is viable”, and therefore makes no requests based on such determining.
6 Ravi does not discuss a “particular amount of future streaming content” or
7 “remaining streaming content”. Rather, Ravi discusses sending
8 Decrease_Bandwidth messages and Increase_Bandwidth messages to the server
9 depending on whether the number of data packets in a playout buffer rises or drops
10 below certain thresholds. Contrary to the assertions by the Office, Ravi does not
11 teach Applicant’s claimed “determining if the actual rate is viable”, or “if the
12 actual rate is viable for receiving the streaming content, requesting the server to
13 send remaining streaming content at a rate that is not greater than the actual rate”.

14 For these various additional reasons, it is clear that Ravi does not teach all
15 the elements of Applicant’s claim 1. Accordingly, the 102(b) rejection to
16 Applicant’s claim 1 based on Ravi is not supported and should be removed.
17 Applicant respectfully requests that the 102(b) rejection of claim 1 be removed.

18 **Claims 2-15** each depend directly or indirectly from claim 1, and thereby
19 incorporate each of the elements of claim 1. Accordingly, claims 2-15 are
20 allowable at least on the basis of this dependency, in addition to the further
21 elements recited therein which are neither shown nor suggested by the cited
22 reference. Accordingly, Applicant respectfully requests that the 102(b) rejection
23 to claims 2-15 be removed.

1 Independent **claim 16** recites elements from the server perspective that are
2 similar to and/or parallel to elements of claim 1 discussed above. For example,
3 claim 16 recites the following in part:

4 receiving a request from a client to stream content to the client at
5 a first transmission rate;
6 streaming content to the client at the first transmission rate;
7 receiving a request from the client to increase the streaming to a
8 second transmission rate for a specified amount of content data;
9 streaming the specified amount of content data to the client at the
10 second transmission rate; and
11 resuming streaming content to the client at the first transmission
12 rate.

13 As noted above, Ravi does not discuss “particular” or “specified” amounts
14 of content data to be streamed at a second transmission rate. That is, Ravi does
15 not discuss “requesting the server to send a particular amount of future streaming
16 content at a second rate” as recited in claim 1, and likewise, does not discuss
17 “receiving a request from the client to increase the streaming to a second
18 transmission rate for a specified amount of content data” as recited in claim 16.

19 The Office refers to Ravi at col. 3, lines 1-41, col. 13 lines 9-25, and cols.
20 11-12, lines 43-4 to support the assertion that Ravi teaches the claimed “receiving
21 a request from the client to increase the streaming to a second transmission rate for
22 a specified amount of content data”. As discussed above regarding col. 3, lines 1-
23 41, Ravi does not teach “particular” or “specified” amounts of content data to be
24 streamed at a second transmission rate. At col. 13 lines 9-25, there is also no
25 mention of “particular” or “specified” amounts of content data to be streamed at a
second transmission rate. At cols. 11-12, lines 43-4, Ravi discusses requesting
“retransmission of ‘missing’ data packets for just-in-time (JIT) reliability”. In

1 Ravi, sequence numbers are checked for each data packet as it arrives at the client
2 computer, and if skipped packets are found to be missing in the playout buffer, the
3 client can send a request to the server to retransmit the missing packet. However,
4 such a request is for an individual packet and not for particular amounts of content
5 data to be streamed. Also, such requests do not request that specified amounts of
6 content data be streamed at a particular rate such as a second transmission rate as
7 recited in Applicant's claims.

8 Accordingly, as with claim 1, Ravi does not teach all the elements of
9 Applicant's claim 16, and the 102(b) rejection to Applicant's claim 16 based on
10 Ravi is not supported. Applicant therefore respectfully requests that the 102(b)
11 rejection of claim 16 be removed.

12 Additional elements of claim 16 that are not taught or discussed in Ravi
13 include at least the claimed "streaming the specified amount of content data to the
14 client at the second transmission rate" and "resuming streaming content to the
15 client at the first transmission rate". For these additional reasons, it is clear that
16 Ravi does not teach all the elements of Applicant's claim 16, and the 102(b)
17 rejection to Applicant's claim 1 based on Ravi is not supported. Applicant
18 therefore respectfully requests that the 102(b) rejection of claim 16 be removed.

19 **Claims 17 and 19-23** depend directly or indirectly from claim 16, and
20 thereby incorporate each of the elements of claim 16. Accordingly, claims 17 and
21 19-23 are allowable at least on the basis of this dependency, in addition to the
22 further elements recited therein which are neither shown nor suggested by the
23 cited reference. Accordingly, Applicant respectfully requests that the 102(b)
24 rejection to claims 17 and 19-23 be removed.

Each of the remaining independent **claims 24, 33, 38, and 49**, recites elements that parallel those discussed above with respect to claims 1 and 16. For example, **claim 24** recites in part:

. . . request the server to modify the first streaming rate to a second streaming rate for a *specified amount of streaming content data*;

. . . determine an actual streaming rate resulting from the request to modify the first streaming rate to the second streaming rate, and to *determine the adequacy of the streaming at the actual streaming rate*; and

. . . request the server to stream remaining streaming content at a rate that is not greater than the actual streaming rate if the bandwidth measurement module *determines that the actual streaming rate is adequate for streaming the remaining streaming content*.
(emphasis added).

Claim 33 recites in part:

. . . identify a request from the client to modify a first streaming rate at which a version of the streaming content stored in a multi-bitrate file is being *transmitted to the client to a second streaming rate for a limited amount of streaming content data*.
(emphasis added).

Claim 38 recites in part:

. . . *requesting the server to transmit a limited portion of the content file data* over the network at a second transmission rate;

receiving the limited portion of the content file data from the server at an *actual transmission rate* which is less than or equal to the second transmission rate;

determining if the network can viably support transmission of the content file data at the actual transmission rate;

if the network can viably support transmission of the content data at the actual transmission rate, *requesting the server to transmit subsequent content file data at a rate that is not greater than the actual transmission rate*;

(emphasis added).

1 **Claim 49** recites in part:

2 *receiving a request from the client to transmit a limited portion*
3 *of content file data* to the client at a second transmission rate;
4 *transmitting the limited portion of content file data* to the client
5 at the second transmission rate;
6 transmitting content file data subsequent to *the limited portion*
7 *of content file data* to the client at the first transmission rate.
8 (emphasis added).

9 Accordingly, the reasoning set forth above regarding the 102(b) rejection of
10 claims 1 and 16 apply equally to the rejections of independent claims 24, 33, 38,
11 and 49. Thus, independent claims 24, 33, 38, and 49 are allowable for at least the
12 same reasons indicated above regarding claims 1 and 16, and Applicant
13 respectfully requests withdrawal of the 102(b) rejection of claims 24, 33, 38, and
14 49.

15 Furthermore, claims depending from independent claims 24, 33, 38, and 49
16 incorporate the elements of their respective independent claims and are therefore
17 allowable at least on the basis of such dependencies, in addition to the further
18 elements recited therein which are neither shown nor suggested by the cited
19 reference. Accordingly, Applicant respectfully requests that the 102(b) rejection
20 to **claims 25-32, 34, 36-37, 39-48, 50-51, and 53** be removed.

21 **§103 Rejections**

22 **Claims 18, 35, and 52** are rejected under 35 U.S.C. §103(a) as allegedly
23 being unpatentable over Ravi in view of Enns et al. (U.S. Patent 6,785,288)
24 (hereinafter “Enns”). Applicant respectfully traverses the rejection.

25 Enns teaches the use of a downstream channel carried in a broadband
transmission medium and an upstream channel operating in the same or different

1 medium at a different speed or under a different protocol to enable a host
2 computer to transfer information with a plurality of remote devices over a shared
3 broadband medium. A system architecture permits independent scalability of
4 upstream and downstream capacity separately for each of the upstream and
5 downstream physical paths, and a network manager in the system manages
6 configuration parameters of the downstream bandwidth allocated to remote
7 devices. The network manger effects allocation of downstream bandwidth to
8 requesting devices according to bandwidth utilization by other devices, bandwidth
9 demand by the requesting remote device, class or grade of service by the
10 requesting remote device or bandwidth guaranteed to other remote devices. The
11 system additionally manages configuration and bandwidth through control and
12 response packets generated at the network operations center and the remote
13 devices, respectively. (col. 2, lines 35-65).

14 In rejecting claims 18, 35, and 52, the Office asserts that Ravi discloses a
15 method, system, and computer readable medium including the subject matter
16 discussed above. However, Applicant has presented arguments herein above
17 regarding each of the independent claims from which claims 18, 35, and 52
18 depend, and has clearly shown that Ravi does not teach the elements of the
19 independent claims from which claims 18, 35, and 52 depend. Regarding claim
20 16, for example, from which claim 18 depends, Ravi does not teach at least the
21 claimed “requesting the server to send a particular amount of future streaming
22 content at a second rate”, “streaming the specified amount of content data to the
23 client at the second transmission rate”, and “resuming streaming content to the
24 client at the first transmission rate”. Regarding claim 33, from which claim 35
25 depends, Ravi does not teach at least the claimed “identify a request from the

1 client to modify a first streaming rate at which a version of the streaming content
2 stored in a multi-bitrate file is being transmitted to the client to a second streaming
3 rate for a limited amount of streaming content data". Regarding claim 49, from
4 which claim 52 depends, Ravi does not teach at least the claimed "receiving a
5 request from the client to transmit a limited portion of content file data to the
6 client at a second transmission rate", "transmitting the limited portion of content
7 file data to the client at the second transmission rate", and "transmitting content
8 file data subsequent to the limited portion of content file data to the client at the
9 first transmission rate".

10 Regarding claims 18, 35, and 52, Enns is cited only for its purported
11 discussion of "flagging the data in order to have flexibility in the management
12 system", and not for any teaching or suggestion of the various elements quoted
13 above from independent claims 16, 33, and 49. Furthermore, Applicant cannot
14 find any such teaching or suggestion in Enns regarding these various elements.
15 Accordingly, Enns does not remedy the deficiencies of Ravi noted above, and
16 claim 18, 35, and 52 are allowable over the combination of Ravi and Enns.
17 Applicant therefore respectfully requests that the §103(a) rejection to claims 18,
18 35, and 52 be removed.

19 20 **Conclusion**

21 All pending claims are in condition for allowance. Applicant respectfully
22 requests reconsideration and prompt issuance of the subject application. If any
23 issues remain that prevent issuance of this application, the Examiner is urged to
24 contact the undersigned attorney before issuing a subsequent Action.
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Respectfully Submitted,

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